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(54) METHOD FOR CONTINUOUSLY FORMING THIN FILM

(57)Abstract:

PURPOSE: To accelerate layered growth and to form a continuous multilayer thin film by forming the film of a segregation forming material low in surface energy on the surface of a substrate in specified thickness and then continuously forming the desired film under specified temp. conditions.

CONSTITUTION: The film of a segregation forming material with lower surface energy than a thin film forming material is formed on the surface of a substrate in the thickness of ≥1/100 of an atomic layer. The films of respective materials are then formed while controlling the lower-limit temp. (TLC° K) and the upper-limit temp. (TUC° K) according to the equations. In the equations, QS is the surface energy of the segregation forming material on the thin film forming material or segregation forming material, QV is the volume diffusion energy of the segregation forming material in the thin film forming material, R is the gas constant, DOS is the frequency term of the surface diffusion coefficient of the segregation forming material on the thin film forming material or segregation forming material, DOV is the frequency term of the volume diffusion of the segregation forming material in the thin film forming material, (a) is the number of lattices, and π is the average film forming rate.